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ABSTRACT

The emergence and purpose of formative evaluation as a tool for curriculum developers is described. It is pointed out that formative evaluation seeks to establish the merit of instructional materials during their development, to modify and improve the design of instructional materials, and to establish their worth so they may be adapted for use in local contexts. The value of formative evaluation in the development of global education materials is explored. A discussion is presented on formative evaluation methods and procedures, including: (1) pilot testing materials in the field; (2) use of prototype materials during pilot testing; (3) use of entire sets of materials during pilot testing; (4) determining the size and scope of pilot tests; (5) purpose and procedures of site visits during pilot testing; (6) composition and contributions of panels of experts; and (7) purposes and advantages of teacher and student evaluations and questionnaires. A description is presented of the use of formative evaluation in developing a curriculum for a Global Studies in Geography Project for middle school social sciences students. Problems faced by developers in adapting materials to the abilities and interests of both students and teachers are discussed. Recommendations and guidelines are offered for planning and expediting a formative evaluation. (JD)

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THE USE OF FORMATIVE EVALUATION IN THE DEVELOPMENT OF GLOBAL EDUCATION CURRICULUM MATERIALS

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This paper will discuss formative evaluation methodologies and their use in the Global Studies in Geography Project. A definition and the purposes of formative evaluation will be presented. Suggested methods and procedures will be detailed along with general and specific findings from their use in conjunction with the Global Studies in Geography Project. It is the purpose of this paper to show how the formative evaluation process can provide unique opportunities for understanding the perspectives of teachers, students, curriculum developers, and other global education professionals. This understanding can be used to build clear conceptions of the field as well as clarify the most useful content, skills, and values to be included in global education curriculum materials.

The Emergence and Purposes of Formative Evaluation

Scriven (1967) first used the term formative evaluation to describe the process of gathering data to improve educational products during the developmental phase. Although curriculum theorists (Tyler, 1949; Ellsworth, 1955; Bruner, 1966) had long recommended the use of systematically collected data to help make curricular decisions, Scriven was the first to distinguish formative evaluation activities, which occur during the development of experimental materials, from summative evaluation, or evaluation conducted to assess the overall performance of a completed product.

One of the important aspects of the federally funded large scale curriculum development projects of the late 1950's and 1960's was the inclusion of formative evaluation. Its purpose, in keeping with the instructional goal of "scientific inquiry," was to ensure that the preparation of new curricula would be as scientific and rational as possible. Many developers lamented previous curriculum development procedures that created new texts and materials with little or no

systematic evaluation. Instead of "evaluation by intuition," (Mehlinger and Patrick, 1971: 884) the new generation of curriculum developers would follow the "research, development and diffusion (RD & D)" model of educational change (Clark and Guba, 1966) that would yield scientifically tested products. Evaluation would be:

> performed continuously throughout the duration of a curriculum development project to provide information to project personnel at every stage of development as a basis for key decisions about how to proceed with project work. (Gillespie and Patrick, 1974: 81)

Another impetus for the inclusion of formative evaluation in the curriculum development process was the widespread use of an objectives-based approach to instructional development. Instruments were devised and used to measure students' success in achieving the projects' stated objectives. If certain objectives were not mastered, developers could then revise the materials until students were able to demonstrate understanding.

Formative evaluation was also employed to assess some of the broader curricular impacts of the new materials. Curriculum developers and researchers recognized that the success of their product could well depend on the determination of: What teacher or student characteristics were associated with the product's success? How much teacher training was required before teachers had success with the materials? and What kinds of instructional strategies or classroom interaction patterns seem to produce the most successful results? (Rhodes, 1982).

A final reason for the use of formative evaluation was the need to assess the scholarship and thoroughness of the content of the new materials. The use of content "experts" was considered an essential aspect of evaluation. Review data obtained during the formative evaluation phase from the academic community could be used by the

developers to make revisions and bring the materials into line with current scholarly opinion. (Mehlinger and Patrick, 1971; Grobman, 1970).

The overriding purpose of formative evaluation is to make judgment regarding the merit and worth of the materials in order to improve curriculum materials in the process of development.

Merit is the intrinsic context-free value of the materials. Specialists in global education and instruction would judge them as positive or negative based on a criteria generic to all curriculum materials in the field. Questions of merit involve content validation by experts and the presentation of instructional objectives that are sound and valid. Worth is the extrinsic context-determined value of the materials. The worth of the materials involves questions of how they work in particular settings (Guba and Lincoln, 1981: 39). Can students in an inner city depressed area relate to the case studies presented? Change the context, and you change the worth.

Formative evaluation is concerned with questions of both merit and worth. The evaluation seeks to establish the merit of the materials during their development to modify and improve the design. The evaluation also seeks to establish the worth of the materials so they will be adopted for use in local contexts.

Having determined what and where content, skills, and values will be taught, formative evaluators, in conjunction with curriculum developers, decide what information is needed in the process of development. Major questions are written to match instructional objectives, the variables of student ability, teacher ability and style, school/community values and setting and format and readability. Such questions include: Is

the content and presentation of concepts appropriate for the subject (course) being offered and the cognitive abilities of the students? Are the skills systematically presented, practiced, and reinforced in such a manner that students build mastery and apply old learning to new? Is the reading level appropriate? Are the materials too active or not active enough? Do they contain any bias? Are the values implicity or explicitly stated likely to offend school/community norms? Is the teacher's guide useful and what kinds of options/instructions to the teachers would be most useful?

These questions, among others, guide the formative evaluation process.

Formative Evaluation and Global Education

Given this background, it is understandable that global education curriculum developers have embraced the practice of formative evaluation. The role of formative evaluation/curriculum development in global education is confounded by several unique concerns. One deals with the question of defintion. What is global education? Some of the social studies conceptions offered include: (1) a region by region focus; (2) a linkages approach stressing community and the world connections; (3) a global issues emphasis on topics such as food, poverty, conflict, etc.; (4) the study of foreign policy and the behaviors of governmental actors; (5) a multicultural/ethnic focus on cultural diversity and similarity; (6) future studies, which investigates possible, probable, and preferable futures; (7) peace/world order studies stressing the importance of social reconstruction models to create and ensure a stable global community; and (8) the social sciences and history approaches of economics, geography, anthropology, sociology and psychology.

In addition to the ongoing dialogue over the issue of conceptions, curriculum developers and formative evaluators have to address the issue of "where does it belong in the curriculum?" Should elementary children learn about the world while they learn about themselves, their immediate surroundings, and their nation? Since global interdependence is a reality of today's world, shouldn't language arts, science, math, foreign language, practical arts, creative arts, and physical education programs do it too? Advocates of global education have recognized the inter/multidisciplinary nature of the field and deal with the "add on - infusion" delimma of creating and disseminating new materials.

The concern of curriculum developers and formative evaluators of global education materials then becomes one of creating materials that teachers, parents, administrators, and textbook publishers will recognize as fitting into appropriate and existing slots in the curriculum while at the same time initiating change that is consistent with the objectives of schooling for a global age. In a time of shrinking budgets, an emphasis on accountability, and the call for a back-to-basics curriculum, global education curriculum developers face serious obstacles.

The issue of values is also one that must be addressed. Many of the existing conceptions of global education are value ladden. Some view the overriding concept of interdependence in the normative sense. They believe curriculum materials should stress the need for the redistribution of resources from the North to the South to ensure a stable future. Others object to any notion of reducing ethnocentrism or the focus on global rather than purely national concerns. Still, most global education materials take the position that interdependence is not a "good" or "bad"

thing but a reality; one which needs to be taught to our children whether for national defense and/or global survival reasons.

Whatever tact global education materials take, the values issue is an important concern. If global education curriculum amterials are to be successfully disseminated, adopted, and used in classrooms, they cannot be in opposition to existing school/community values. Formative evaluators need to be aware of existing and conflicting values and communicate such concerns to the curriculum developers.

Formative Evaluation Methods and Procedures

The previously stated purposes and concerns of global education curriculum develoeprs shape the formative evaluation process. The methods and procedures to be discussed address both the issues of merit and worth.

Pilot Testing

A widely used method for formative evaluation is the pilot test. Pilot testing refers to the use of materials in the field to "try them out." Information obtained from the pilot test can provide general and specific feedback about what's working and what is not. This feedback then determines revisions of the materials tested as well as what future materials to be developed will include.

There are several ways to conduct a pilot test. The following chart presents the basic options.

WHAT IS TESTED?

WHO DOES THE TESTING?	Prototypes	Entire Set of Materials
Teachers Use	Selected examples of chapters, lessons, activities to supplement or replace parts of typical curriculum.	All of the experimental materials replacing typical text/curriculum.
Curriculum Developers/Formative Evaluators Use	Selected examples of lessons or activities when visiting a classroom.	All of the experimental materials replacing typical text/curriculum. They hold full or part-time teaching positions while developing or evaluating curriculum for the project.

The Use of Prototypes - Prototypes are examples of selected materials that reflect the instructional design and format to be carried through all the materials. Questions of readability, interest, and skill development can be determined and then provide feedback to guide the development of other materials. Teachers or the developers/evaluators can test prototypes.

An advantage of pilot testing prototypes is that teachers do not have to buy into the entire curriculum and it can be a fairly quick way to obtain immediate feedback. When developers/evaluators take over a class and use prototypes, they can get first hand knowledge and experience. Judgments on how it works and feels can serve to remind the developers/evaluators of the "real world" of classrooms and students.

A disadvantage in using prototypes is that teachers and students do not have a sense of what's come before, instruction is fragmented, and the findings may not be generalizable to other more diverse student/teacher populations. If the developers/evaluators take over a class periodically to test prototypes, they should be aware that students may be reluctant to behave as they normally would. They may perform for an outsider and not provide typical responses. In addition, teachers are not always willing to give up their classes and interrupt their lesson plans, even for a short period of time.

The Use of the Entire Set of Materials - Another type of pilot test is to test the entire set of materials as they are being developed. This requires recruiting and maintaining pilot sites. What is learned from the testing of Chapter 1 will show up in a later chapter.

An advantage to using this type of pilot test is that a stable group of teachers and students can offer detailed information across a broad range of evaluative concerns. A good rapport can be established between evaluators and teachers/students thereby building trust and obtaining honest and constant critique.

A disadvantage is that it is sometimes difficult to make the needed changes in the new materials quickly and get them into the field when they are needed. If materials are not ready when the teachers/students are, other materials must be used. Momentum can be lost if there is a time lag.

It is also difficult to have developers/evaluators hold full or part time teaching positions while the development of materials is in progress. The "lab school" concept has its advantages but realistically these opportunities are rare, not to mention the difficulty of trying to teach and develop curriculum at the same time.

The Size of the Pilot Test - Whether prototype or the entire set of materials is to be tested, another aspect of pilot testing is the question of how many teachers/students are needed to obtain the necessary feedback. The size of the sample usually depends on the size of the project budget.

A large number of pilot sites may be useful to ensure representativeness of diverse ability, ethnic, cultural, and school/community background populations. On the other hand it is difficult to keep teachers on track and collect information from a large number of pilot sites. It is easy to reach a point of diminishing returns and more is not always better. The cost of duplications, mailing, and visitation is another consideration. If, on the other hand, the pilot test is also to serve as a method of dissemination, a large number of sites may serve an additional purpose. If large numbers of people get excited about the project, the beginnings of a future market are created.

Another option is not to use entire classes at all but work closely with a small group of students. A group of five or six students sitting around a table with developers/evaluators may be able to provide valuable feedback in a short period of time. An advantage to having a small group of students react to sample lessons or activities is that they may be more spontaneous and honest when away from the classroom setting. One problem with using a small group of students is that they may not be representative of their peers. Several groups, including different types of students, should be used.

Regardless of what type of pilot testing is used, it is a valuable method for obtaining the information needed while curriculum is in the process of development. A successful pilot test depends on the developers'/evaluators' abilities to gain and maintain access to teachers and students. If the feedback obtained guides the future development/revision of the materials, their degree merit and worth can be greatly improved.

On-Site Visitations

In conjunction with a pilot test are visitations to sites. The purpose of visitations is to observe and talk with participants who are using the materials and obtain judgments as to their merit and worth. Five basic types of procedures can be used. They are: 1) the teacher and student interview; 2) the participant observation; 3) the non-participant observation; 4) unobtrusive measures; and 5) evidence of student work.

The interview provides an opportunity for teachers and students to answer general and specific questions related to the materials. One type of interview is structured, whereby the evaluator asks questions, taking notes on all responses. A tape recorder may be used, however it may be intimidating. If respondents are informed that they will never have to listen to their recorded voices and that only the developers will hear the tape, they may be more at ease. However, it depends on the age/maturity of the respondent.

The interview should begin with general information questions such as what materials (chapter, lesson) are you working with now? More detailed questions can follow such as, How did lesson 3 go? Did your students seem interested in the activity on . . .? What evidence do you

have that students were able to read and understand the graph on . . .? What did you like most/least about chapter. . .? and How would you improve the chapter? Questions dealing with readability level, format, and any bias detected in the materials can also be included.

The purpose of the interview schedule is to remind the interviewer to ask certain questions. The exact order need not be followed and responses to one question may spark others. The key is to help the respondent be comfortable and say what's on his/her mind yet at the same time focus in on the issues to be evaluated so that materials might be positively altered.

The unstructured interview is more spontaneous. The interviewer may find himself/herself in the teachers' lounge or library with a group of people. The interviewer may have specific questions in mind but the conversation is more informal. Typically, notes are not taken. Unstructured interviews are extremely valuable tools for getting a true picture of the context. Participants are often more at ease and willing to be honest. The interviewer asks open-ended questions thereby picking up on things considered of most importance to the respondent. Usually the next question is determined by what has been said previously.

Both structured and unstructured interviews can yield important information that cannot be obtained through written evaluations or over the phone. Students can be interviewed in small groups or individually. A useful "check" is to ask of students "what would your classmates and/or teacher say about these materials?" The same question can be asked of the teachers.

Problems involve the issues of scheduling, time, and an appropriate place to conduct the interviews. All this needs to be set up before hand. Teachers and students may be tempted to paint a rosy picture of the materials, which although you need to know what's working, it is equally, if not more, important to ferret out the disasters. Respondents need to somehow understand that you will not take criticism personally and that they are an essential part of the development effort.

Observations are also a part of the on-site visitation. During the participant observation the developer/evaluator takes over a class or group to teach a lesson and/or to ask about the strengths and weaknesses of the materials. This is a good opportunity to ask of students, "If you could come back with me to . . .and work with us, what would you want to put in the materials?" The participant observation also gives the developer/evaluator a chance to check on specific content, skill, and/or attitude acquisition on a first hand basis. As with the testing of prototypes by the developer/evaluator, the participant observation serves to be a reminder of the world of the student and teacher.

The non-participant observation provides an opportunity for seeing how teachers and students in context work with the materials. Being removed from active involvement allows the observer to pick up on verbal and non-verbal behaviors and teacher adaptations of the lessons. Sitting in the back of the room, the observer takes notes on everything that is happening. A 30-40 minute observation can yield important feedback on the materials, student interest and ability, and teacher style.

Evaluators are also interested in unobtrusive measures and non-verbal communication. What is on the classroom's walls is a possible indicator of teacher perspective and style. Watching body language is also another source of feedback.

While visiting a pilot site evidence of student work can be another source of feedback. Student worksheets, tests, papers, projects, and homework say a great deal about what teachers wish to stress and think is important. The achievement of content and skill objectives can be determined if a wide variety of student papers is examined. If possible, such evidence should be copied and saved by the project. It too is another reminder of how teachers create evaluation and grading instruments to hold students accountable.

An additional aspect of on-site visitations is the summary or synthesis of notes taken while at the school. It is not possible to get everything down during the visit and impressions may be as useful as specific responses to interview questions. Within 24 hours it is a good idea to go through all notes and write up a summary of what was learned. Key quotes from observations or interviews can sometimes best capture the opinions of teachers and students. These summaries can be circulated to the development staff and serve as a basis for discussion at revision/brainstorming sessions. It is important to recognize that the observer/interviewer is a subjective instrument. All information obtained from visitations has been interpreted through the perspective of the evaluator. Taking notes and writing summaries shortly after a visit helps clarify and focus in on the feedback of most use.

Panels of Experts

In addition to pilot testing and on-site visitations, several different panels of experts can provide feedback to evaluators and developers. Three such panels are: (1) the teacher panel; (2) the parent/community panel; and (3) the content validation panel.

A teacher panel is comprised of 5-8 people who teach or have taught a course where the materials could be used. A parent panel is made up of concerned community members interested in curriculum materials. A content validation panel includes representatives of specific disciplines relevant to the materials such as geography or art history, and/or reading specialists, educational psychologists and other curriculum developers.

Meeting periodically, panel members critique the curriculum materials. Prototype chapters, lessons, or activities may be the focus or the entire set of materials developed thus far. Panel members should receive all materials to be reviewed several weeks previous to each meeting. They should be encouraged to write comments right on the materials. Their copies may even be collected by the project staff.

Working in a round-table fashion, a project member guides the discussion over the materials. Clarification and probing questions are asked by the developers/evaluators. Especially with parent and teacher panels, justification or taking issue with a critique should be avoided. Explaining the rationale behind a lesson may serve to provide some context but all feedback should be encouraged and accepted as is.

Notes should be taken on all comments. If some or many of the comments are eventually disregarded by the developers, the process has still been useful. Issues and concerns have been raised. Their credibility and usefulness is judged after all points of view have been heard and discussed.

A major advantage to using panels of experts is that the developers/ evaluators are able to obtain additional information from people not involved with the materials on a continuing basis. Although the interests or concerns of panel members may not be congruent with the objectives of the project, vocalization of divergent points of view helps create increased and needed awareness of public, teacher, parent, and scholar, opinion. Materials may not be altered because of pressure from the "right" or "left" but panels of experts help to bring such issues into the open.

Teacher and Student Evaluations/Questionnaires

The last method to be discussed is the teacher and student evaluation/questionnaire. Most typically these are developed by the evaluator and mailed to pilot teachers. An advantage to having teachers and students fill out evaluations and questionnaires is that they provide feedback without a visit to a pilot site.

Many different types of open or closed ended questions can be asked including ones about specific chapters, lessons, and activities. Teachers can be asked to judge student interest, strengths and weaknesses of the content and skills, and the degree of student attitude change resulting from use of the materials. A sample of students may also take a test to provide concrete evidence of achievement. The purpose of these checks is not to provide teachers with a way to grade students but to help the project staff evaluate the materials.

Evaluation questions serve the purpose of judging the pilot materials. On the other hand, questionnaires are not typically judgments of the materials but information about specific school/classroom/community realities, how much time in general is spent on a given topic, or what supplementary materials are being used. Having this kind of information

about the context of the pilot site helps evaluators interpret other findings and prepare for on-site visitations.

When returned, evaluations and questionnaires must be carefully summarized. Responses must be compared and contrasted, gleaning all the information for the most consistent and relevant information. It is better not to overuse the written evaluation and questionnaire. The less paper work the pilot test creates for the teachers, the better. The selection and use of the pilot test, on-site visitation, panels of experts, and evaluation and questionnaire depends on what information is needed and how it can best be efficiently and accurately obtained. Flexibility is important. Using a variety of sources and procedures to corroborate feedback is essential.

The Formative Evaluation of the Global Studies in Geography Project

This section of the paper will present the formative evaluation methods and findings for the Global Studies in Geography Project. Sponsored by the National Science Foundation and housed at the Social Studies Development Center, Indiana University, Bloomington, the Project completes its third year of funding on July 1, 1982. Formative evaluation of the curriculum materials has occurred for the past two years.

The middle school social studies class is the target audience for the Project materials. Grades 6, 7 or 8 typically offer one or two year courses in world cultures, world history, or world geography. The materials address three goals: (1) knowledge of how the world works; (2) skills including geographic, thinking, and basic comprehension and writing abilities; and (3) the development of perspective consciousness. The curriculum materials are designed to match the cognitive and affective

developmental levels of early adolescents. The emphasis is on the integration of a global perspective whereby various issues are studied on a global scale and then applied to specific regions/areas of the world.

Conceptualization of the Project framework occured during the first year. The generalizations, concepts, skills, and attitudes to be included were outlined in detail. Unit and chapter content for the year-long course guided the creation and systematic integration of all instructional objectives.

Although the conceptualization was submitted to various reviews and revisions, the first effort to formatively evaluate the curriculum materials did not occur until January, 1981.

A group of twelve 7th grade social studies teachers piloted the first six chapters during the January-June 1981 semester. The pilot teachers and students represented a variety of settings. Rural, urban and suburban schools with diverse ethnic/cultural and economic community backgrounds were recruited. An effort was also made to test in classes with a variety of student ability levels. Because the teachers were volunteers, random selection was not possible. Each pilot site was visited three times during the course of the semester. Teachers and students were observed and interviewed. Using a checklist format, teachers also completed evaluations for each chapter.

By the middle of the second month it became obvious that too much material had been created for each chapter. Teachers were getting bogged down in covering content, and concept overload was causing a problem. It became evident that 7th grade students varied greatly in their abilities and the knowledge and skills they brought to the classroom. Mostly, we were not prepared for the variability in reading levels. We had to change some assumptions. Many students still had no idea where

countries/regions were located. The materials were presenting global issues without having checked out or covered some basics about the world as a system and/or made up of several systems. In the words of one student, "I like the stuff on people but not the stuff on population." What was meant here was that the stories, vinettes, and case studies were things students could relate to. We lost many of the students when broader information on population issues was presented. We needed to revise the materials so that they would do a better job of integrating the two.

Teachers expressed a variety of opinions about the materials. They liked the global issues approach while at the same time they wanted more information focusing on specific regions. Still, pilot teachers said that the Project materials were "better" than the standard text they had been using. We needed to know why.

Through the continued visits and summary of chapter evaluations, a few things began to surface. Interest level was high. The stories about middle school aged children in different cultures went a long way to teach and analyze similarities and differences. The student interviews began to reveal some understanding of cultural and environmental factors influencing the way people lived and met their basic and growth needs.

However, the stories were only part of what seemed to be contributing to high interest. Another thing was the growing emphasis in the materials on active involvement. Previewing what the stories, narrative, or chart, map, table, or graph said, discovering the same, and then summarizing the main points, quickly got old. The materials began to include opportunities for students to role-play, work in groups, do projects and participate in simulations. We constantly wrestled with the issue of how much

activity to write into the materials and how much to put into the teachers' guides instead. We were still unsure and concerned about teachers reactions to the materials telling students to "break into groups."

By the end of the first round of piloting we had tested some prototype chapters, lessons, and activities. The regional chapters on Northern America and Japan could remain pretty much in tact. They fit with teachers' views of global studies. The other four chapters needed to be completely revised. The reading level had to be lowered. We had to continue to try to find a good balance between activities in the student materials while providing teachers with a greater sense of control and flexibility. We also had to find a better way to present global systems and issues while at the same time keying in on the perspectives and experiences of students. By the time the summer started we knew a great deal about what worked and what didn't. The curriculum developers had to rewrite the first four chapters.

The second round of piloting began with 38 teachers from 9 different states. They were recruited from presentations at social studies and geographic education conferences and through writing letters and making calls to global and social studies educators, supervisors, and friends of the Social Studies Development Center throughout the country. With dissemination also as an objective, a great deal of time was spent recruiting an wide variety of teachers/students from numerous types of settings.

Each teacher received a class set of materials and binders. Chapter evaluations were rewritten to more specifically address the unique features of each chapter. Open ended questions were now used in order to solicit more feedback. These became particularly useful since visitations could not be made to all pilot sites. Teachers were instructed to "call collect any time," and letters were sent with every mailing.

It is difficult to pin down the major revision points in the second round of the development of the materials. After the first five chapters, which were revised on the basis of the first round of piloting, chapters were in various stages of development. What was learned early in the pilot did not show up in revisions until later. Since teachers used the materials differently, some were on Chapter 3 while others were waiting for Chapter 6. The pressure to create, revise and get the materials out when needed was intense at times. The formative evaluation information had to be gathered, then communicated to the developers quickly. Sometimes, the news that teachers wanted vocabulary lists and tests was not always received with enthusiasm.

There are a few major things that can be said about the formative evaluation, even though at this point, it continues. One recurring comment deals with the emphasis on the region by region approach to global studies. For a variety of reasons teachers want more details about regions presented earlier in the materials. They feel responsible to "cover" certain areas of the world and reorient their focus to global issues applied to regions has only been partially accepted by the teachers. Others really like the global approach but want more or less geography, more or less concepts, and/or more or less activities. Some teachers have complained that the stories and case studies reinforce stereotypes and students at this age are not capable of dealing with so much culture. Others think the stories are responsible for the high interest and want them included.

The issue of activity placement has mostly been resolved. They appear in general terms in the student materials with a great deal of options provided in detail in the teacher's guides. Students engage in role plays, simulations, group work, and create projects like space communities and idea webs. Adaptations for more able and less able students, along with suggestions for cooperative teaching with science, math, language arts, and foreign language teachers have also been included in the teachers guides.

Teachers have also called for more location type activities, especially earlier in the materials. Latitude and longitude has still not appeared, much to the dissatisfaction of a few. The inclusion of basic reading for comprehension, writing sentences, paragraphs and papers, and computation skills has been well received. The geographic, and critical thinking skills, including decision-making, have also been cited as a plus, although not all teachers give skills as much attention as memorizing content.

The concept overload problem has been addressed in later chapters of the materials. As a result of the feedback from a variety of sources, fewer concepts are presented in each chapter. Evidence of student work seems to reflect basic concept attainment through the writing of papers. Teachers report that students are able to give examples and non-examples of resources. Through brainstorming activities they also seem to recognize the importance of human resources and decision-making.

There are many more things that could be said about the successes and failures of the Global Studies in Geography Project materials. However, the purpose of this paper is more to provide information regarding the formative evaluation process in general. Those methods and procedures that have yielded the most useful information will hopefully serve to summarize the experience.

Visitations, including observations and interviews have been invaluable. Participant observations have served to provide first hand knowledge about middle school children. Talking with students has been extremely enjoyable. After several experiences of this nature we know "what will fly" and what won't, partially because we have a better feel for students' perspectives.

During a visit to a small rural school in Appalacia we learned a great deal about perspectives. The community/school is set in a "holler" with high mountains on both sides of a small stream. The school has 126 K-12 students. This 7th grade class has 17 students. Using a map from the chapter on population, the evaluator was leading a discussion on density. When asked why there were so many "dots" in northwestern Egypt, several students replied that obviously all those people were living in a big holler. It took some time to generate other options,for it never occurred to them that everyone did not live as they did.

A key factor is, of course, the teacher. Instructionally sound materials are important but a good teacher makes the difference. The best set of materials possible will be boring if the teacher is not enthusiastic or committed.

This was demonstrated in many ways. We were fortunate to be able to observe students participating in a simulation game on world hunger problems that had been written into the materials. The teacher had spent time helping to prepare students for the simulation and the enthusiasm was evident. In another school students proudly explained the space colonies they had created as a result of working with the chapter on "Earth: Home Sweet Home." It was obvious that they had learned a great deal about human needs.

of chapter strengths and weaknesses have emerged. Taken together with interviews, observations, and teacher panel comments, the chapter evaluations corroborate findings. In an effort to respond to their comments more basic geography was included in regional chapters. Teaching about time zones was presented in the chapter on the Soviet Union and earth-sun relationships (seasons) was added to the chapter on Latin America. Attaching a list of quoted teacher comments to the summarized evaluations has helped the Project staff get as accurate a picture as possible of what's happening in the field.

A major frustration during the process of the formative evaluation involves the role/roles of the formative evaluator vis-a-vis the curriculum developers. During earlier stages of the development process, the formative evaluator was also a curriculum developer. This had its advantages because what was learned could be directly translated into new curriculum materials as well as passed on to others. When the second round of piloting began it became obvious that it was not humanly possible to do both effectively. Better ways had to be found to maintain good communication between the evaluator and developers. An obstacle was time. Developers were writing new materials furiously and frequently did not have the time to get a report from the field, particularly a lengthy one.

In order to overcome this problem a series of memos were written. Chapter evaluation summaries were written and circulated. Summaries of visitations were also written and distributed. Elaborations were offered if requested but usually feedback on the feedback was received only when it appeared in a completed chapter. Not all the recommended changes were made but as the development process has continued, teachers have been more satisfied with the materials. Out of the original 38 teachers who began piloting the materials in September, 34 are still doing so. They are anxious to receive all the chapters and have commented that they will use parts of them next year.

Recommendations

Based on the Global Studies in Geography Project experience a few recommendations may prove useful to others planning formative evaluation efforts. They are:

1) Know what you need to find out before you start looking but let those guidelines change as the evaluation process evolves.
2) Unless dissemination is a purpose of the evaluation, carefully recruit a small number of pilot sites representing a variety of variables.
3) If the formative evaluators are not curriculum developers, set up a regularly scheduled time to meet as a group to discuss feedback.
4) Gather information from a variety of sources constantly looking for patterns of strengths, weakness and suggestions for changes.
5) Establish and maintain consistent and positive communication with all sources of feedback. Teachers, students and panel members need to feel that their ideas are necessary and important to the process of curriculum development.

These recommendations hold few, if any surprises. Any evaluation, whether it be formative or summative, is guided by preconceived ideas of what is important to know. However, emerging designs can provide all sorts of unanticipated and valuable information. On balance, unless dissemination is an objective, there is a substantial project staff that communicates very well, and/or there is a great deal of time and money for visitations, 8-10 pilot sites may be as useful as 30. The key is obtaining pilot sites which represent a wide variety of teacher and student variables.

Good communication with everyone involved is a must, especially given the variety of global education conceptions available. The feedback from students and teachers via on-site visitations and returned evaluations/questionnaires is only useful when it is passed on to the curriculum developers. Bits and pieces of information only serve to fragment the process. All communication (written or oral) between evaluators and developers should be concise, synthesizing patterns and highlights of the most important information. Questions asked by the developers then help the evaluator(s) refocus and/or alter formative evaluation guidelines and procedures.

The job of a formative evaluator in the global education curriculum development process is a unique one. There exists a great deal of variability between what we think global education is (should be), what is available for teachers, and what they want and will use. Formative evaluation deserves more study and attention because,by the inherent nature of the process, it taps into all aspects of definition construction, research,curriculum development, dissemination, and adoption. Formative evaluators have opportunities to view most or all points of view. The formative evaluation process is a useful and valuable one not only with regards to a specific set of materials but working with others to address some of the broader issues confronting the field.

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